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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER	
LIU, MING HUN	
ART UNIT	**PAPER NUMBER**
2675	8

DATE MAILED: 01/29/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/886,028	PARK, JIN-HO	
	Examiner	Art Unit	
	Ming-Hun Liu	2675	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) 1-17 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) 1-17 is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

13)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

a) ☐ The translation of the foreign language provisional application has been received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.
4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 1-5 are rejected under 35 U.S.C. 103(a) as being unpatentable over US Patent 6,268,841 to Cairns et al.

In reference to claim 1, it can be seen from figure 9 of Cairns that his invention is very similar to the one being claimed. Figure 9 shows that the scanning drive circuit (item 2) as being a separate driving system receives gamma data and performs a D/A (item 31) conversion on the information and outputs the signal with the appropriate timing (HSYNC and VSYNC), and RGB elements also inputted into the driver circuit.

Cairns also shoe s a scan line driver in his figure 9 using the synchronization signals to properly scan the lines.

It is also apparent from figure 9, that the different controlling elements are created off the column drive circuit board and fed into the driving circuit of the LCD display.

The remaining limitations of the applicant are not explicitly found in Cairns' disclosure, however the elements are obvious if not inherent to the technology being claimed.

First, power supplies and proper voltages generating units are electrical elements inherent to devices such as the one being claimed. Without them, these elements would not work.

Second, a flat panel display inherently displays a predetermined image, therefore cannot be claimed.

Last, Cairns does not explicitly state that a controller generates the scan and column signals and the timing and generation of the RGB data, it would have been obvious to one skilled in the art to understand with the assistance of Cairn's description that the off board input elements must be generated by a control entity. It would have been obvious to one skilled in the art to generate the various input values, as their existence and creation are clearly implied in Cairns' description.

In reference to claim 2, it can be seen from figure 9 that the RGB and gamma data are bits sent to the column driver unit through different transmission lines.

In reference to claim 3, Clairns' invention is again similar to the one being claimed. Cairns teaches a column drive unit with several driver ICs, where the ICs comprised, a shift register and latches (column 10, lines 21-22). From figure 12, Cairns teaches a DAC (item 23) for selecting the voltage output corresponding to the latch with buffer (item 40). However Cairns does not mention a separate decoder and memory device for the gamma data.

Cairns' invention incorporates the gamma data selection in the D/A conversion circuit. Functionally the two inventions are the same, however Cairns' eliminated the use of a second D/A converter.

One skilled in the art would have added second D/A conversion to make the circuitry simpler to implement with less demultiplexing to worry about.

In reference to claim 4, Cairns invention uses reference voltages to produce the gamma correction (figure 7, item 24). As shown in figure 13, the R, G, B and gamma data are transmitted though the same line. The mixing unit (55) is also included in Cairns' invention.

In reference to claim 5, as shown in figure 13, register 21 divides the data into MSB (most significant bit) and LSB (most significant bit) registers and latches (column 10, lines 21-22), item 23 is a D/A converter for converting the gamma data into gradation voltage. Connected to the D/A converter is a buffer.

The difference between Cairns' invention and the claimed invention is the absence of a separate D/A converter for decoding the gamma data into an analog value. Again, like in claim 3, the D/A converter in Cairns' invention incorporates the dual D/A converter of the applicant.

3. Claims 6-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cairns in view of the applicant's own admission and further in view of Moon.

Much of claim 6 is rejected on the grounds presented in the rejection of claim 1. What Cairns' does not include in his invention was adopting a differential signaling method to his invention. On page 2 of the application, the applicant states that differential signaling techniques are well known in the art and are commonly used in reducing EMI problems a fact that Moon would also agree (column 2, lines 43-50).

It would have been obvious to one skilled in the art to implement differential signaling techniques because the current invention uses several transmission lines with high-resolution data.

Claim 7 is rejected on grounds presented in claim 1 with the addition of Moon. In figures 3 and 4, Moon shows that naturally the controller would require a differential signal transmitting unit for the proper transfer of information.

Claim 8 is rejected on the grounds presented in claim 3 with the addition of Moon. In figures 3 and 5, Moon shows that naturally the driving circuit would require a differential signal receiving unit for the proper reception of information.

In reference to claims 9-15, the applicant on page 2 of the application admits that LVDS, RSDS and TMDS are commonly used differential techniques used by ones skilled in the art. It would have been obvious to implement these different techniques because of their availability.

Conclusion

4. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

- US Patent 6,445,323 to Cairns et al.: DAC used in encoded gamma and RGB signals. With driver circuit decoding. Very similar to claimed invention.
- Us Patent 6,542,143 to Ozawa: Gamma with DAC on column driver.
- US Patent 6,154,121 to Cairns et al.: Two stage D/A conversion stages.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ming-Hun Liu whose telephone number is 703-305-8488. The examiner can normally be reached on Mon-Fri.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Steve Saras can be reached on 703-305-9720. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-305-4750.

Ming-Hun Liu

DENNIS-DOON CHOW
PRIMARY EXAMINER